



FIG. 17.

had lost but little of the severity which it exhibited within the Tropics. The *Château Lafitte* reports: "At noon the wind blew almost a hurricane from the southwest; sea very heavy from the same direction; barometer, 29.50 inches."

While the hurricane was central over the Lesser Antilles, the radius of the area within which the winds reached gale force was approximately 100 miles. Along the coast of the United States the radius had increased, ranging from 150 to 250 miles. In mid ocean the average radius was 200 miles, decreasing materially by the time the storm reached the coast of France.

The accompanying barogram, fig. 17, furnished the Hydrographic Office through the courtesy of Capt. F. A. Chaves, Director of the Meteorological Observatory at Ponta Delgada, San Miguel, Azores, shows the shifting of the wind and the movement of the barometer during the passage of the storm over that place. The barogram points to a still lower minimum for Ponta Delgada than the one given above. The storm apparently passed almost over this town, slightly to the northward.

The daily charts of Atlantic weather show that both off the coast of the Carolinas and between the fortieth and fiftieth

meridians, where the movement of the center of the storm was slow and irregular, areas of high barometer were present to the northward. The conditions of the wind and weather in the former case are shown by the accompanying synoptic charts for August 17-20. (See figs. 13, 14, 15, 16.) The observations on these charts were taken at noon, Greenwich mean time, which corresponds to 7 a. m., local time, on the seventy-fifth meridian. The general track is shown on Chart XIII.

On August 15 an area of high barometer covered the Great Lakes and Ontario with a maximum reading of 30.35 inches. The decrease in the rate of the storm's movement was coincident with the southeastward passage of this high, as is shown by the synoptic charts. On August 17 the position of the high is directly to the north of the storm area. On August 20 the high had decreased in height and moved to the eastward of the fiftieth meridian; the storm had moved off the American coast and increased in velocity.

In these charts the isobars are drawn for every tenth of an inch apart. The following symbols are used: ☁, clouds not given; ☼, variable winds, force 2.

NOTES BY THE EDITOR.

THE WEATHER BUREAU AT THE PARIS EXPOSITION.

The Editor has received from Mr. F. J. Walz, in charge of United States Weather Bureau exhibit, an early proof of an article prepared by Mons. L. Barri, Adjunct Astronomer at the Paris Observatory, for publication in the *Revue Scientifique*. M. Barri makes an extended comparison between the daily publications of the Weather Bureau and those of the Central Meteorological Bureau of France. He says that the comparison between the two must be made indulgently in view of the fact that the funds at the disposal of the Weather Bureau are much larger than those available to our French colleague. Our daily weather map is more than six times as large as that of the French Bureau. The number of stations appearing on our weather map is nearly twice as many. The data given on it is nearly all presented graphically, while on the French map that which is missing is given in tabular form in the accompanying bulletin. The percentage of verifications of storm signals is nearly the same in France as in America, but in general the predictions do not extend so far in advance as do our own.

Mr. E. G. Johnson, assisting Mr. Walz, forwards an article contributed by Dr. Henry de Varigny to *Le Temps* of September 13, in which he praises the work of the Weather Bureau of the United States and the graphic view of its organization that one obtains from its exhibit at the Expo-

sition of 1900. After describing quite completely the daily processes of observation, enciphering, telegraphy by the circuit system, deciphering or translation, the production of maps both manuscript and printed, and the distribution of weather predictions and storm warnings. He says:

No one can ignore the fact that the work of the Weather Bureau is very helpful in the prediction of the weather in Europe, since the weather advances from west to east, and it is from America that the areas of low pressure, which extend rapidly, come to us and make confusion in our meteorology. It is the same in the United States, the future weather is determined by the conditions that prevail in the western portion of that continent.

Although this latter statement by Varigny may in general be true, yet the practical work of daily forecasting has long since shown that one has to keep a steady watch northward, southward, and eastward for the perturbations that disturb the progress of the weather from west to east.

In a detailed report by Mr. F. J. Walz, dated October 18, 1900, and after giving a very full catalogue, filling ten pages, of the Weather Bureau exhibit at the International Exposition of 1900, he says:

The United States Weather Bureau exhibit was installed during the month of April and opened to visitors for inspection in completed condition May 15. The building remained open and the exhibit accessible to visitors every day, except Sundays, from 9 a. m. to 6 p. m. during the time from May 15 to September 30, and from 9 a. m. to 5:30 p. m. during the month of October. It was necessary to close a half

hour earlier during the month of October on account of darkness, there being no way of lighting the building artificially.

The exhibit was visited by many thousands of people, among whom were meteorologists and those interested in related sciences from all parts of the civilized world. The cloud photographs, the method of making weather forecasts, and the kite and aerial apparatus attracted special attention.

Many interested in aeronautics and air explorations examined the kite exhibit in detail, taking photographs and measurements of the kite, instruments, and apparatus. Notably among these were a number of officers of the German, French, Italian, and Japanese armies and navies.

During the meeting of the International Meteorological Congress, which brought to Paris representative meteorologists from nearly all parts of the world, a special invitation was extended to its delegates and members to visit and inspect the Weather Bureau exhibit. This invitation was accepted, and, therefore, the exhibit brought the methods, instruments, etc., of the United States Weather Bureau to the attention of those most interested in meteorological work.

It was the special effort of those connected with the exhibit to explain and set forth in the strongest and clearest light possible the aims and methods of the United States Weather Bureau, and its practicability and great economic value to the people of the United States and of North America. Special stress was given to the great importance and the value of its weather forecasts and warnings.

It is to be regretted that on account of the expense and lack of funds for the necessary cablegrams the daily weather map of the United States, as originally planned, could not have been printed and issued daily in connection with the exhibit. It is also to be regretted that a concise pamphlet or catalogue of the exhibit could not be prepared and printed for distribution, as there was a great demand for something of this kind.

As a result of the visit of the Jury of Awards and their critical examination of our exhibit the United States Weather Bureau was awarded a *Grand Prix*. Gold medals were awarded to two officials of the Weather Bureau, viz: Prof. C. F. Marvin for instruments, apparatus, and appliances, and to Prof. A. J. Henry for cloud photographs.

THE PROCEEDINGS OF THE PERMANENT INTERNATIONAL METEOROLOGICAL COMMITTEE.

From Professor Hildebrandsson, the new Secretary of the Permanent International Meteorological Committee, we have received the printed proceedings of the session of September 15. The committee elected Messrs. Pallazzo of the Central Office at Rome and Shaw of the Meteorological Office in London as new members to replace Messrs. Tacchini and Scott. Professor Hildebrandsson was elected Secretary of the committee. Professor Rucker was elected President of the Magnetic Committee. The directors of magnetic observatories are invited to send regularly to the secretary a list of the days that they consider to have been magnetically calm; these lists will be distributed. The cloud committee expresses the wish that the directors of meteorological observatories shall make simultaneous observations of the clouds at periods to be fixed in advance by the committee on aeronautics.

The committee on aeronautics expresses the opinion that it is desirable that military establishments for ballooning and meteorological institutions in general, be invited by their respective governments to participate in these international ascensions; this request will be communicated by the French Government to all other nations through diplomatic channels.

The subcommittee on telegraphy recommends the following: By reason of the advantages already obtained by extending the radial (i. e., circuit) system into neighboring countries, the subcommittee has decided to propose to the International Meteorological Committee to take the proper steps to form, as soon as possible, a committee composed of official representatives of the participating states, and instructed to confer with the international telegraphic bureau at Berne in order to find the most appropriate means of improving the service of meteorological dispatches.

¹This will, however, be done at the Pan-American Exposition to be held at Buffalo in 1901, when a complete exhibit of the magnitude and importance of the work of the Weather Bureau will be made.—Ed.

OSCILLATIONS OF LAKE LEVEL.

Referring to Professor Henry's article in the MONTHLY WEATHER REVIEW for May, Prof. F. A. Forel, of Morges, writes to him as follows:

I am very much pleased with your excellent study on the frequent lowerings of the level of Lake Erie, caused by the winds. On our Lake Lemman, where the local conditions are less favorable, I have not observed a similar change of more than 12 centimeters. (See Lemman, Vol. II, p. 29.) You found, the 25th of May, 1900, a change of level of 25 centimeters. This is superb.

However, what interests me still more are your seiches, viz, the balancing oscillations in the water of the lake as a whole. You give very fine examples of uninodal oscillations, with opposing balancings at the two extremities of the lake on the 27th, 28th, and 29th of March; duration of the period about fifteen hours.

On the other hand, on the 26th and 27th you observed a binodal oscillation with parallel movements at the two extremities of the lake, consequently with a node in the middle of the lake; duration of the period about ten hours.

I am very much puzzled by this strange relation of ten to fifteen hours in the duration of the uninodal and binodal periods; according to theory the relation should be as 1 to 2. But in practice we obtain slightly different relations, sometimes larger and sometimes smaller: Lake Lemman, 2.07; Lake Constance (Boden See), 1.98; Lake Zurich, less than 2.00; Lake George, 1.82; Lake Lucerne (four Cantons), 1.83, etc. (See Lemman, II, p. 162.) But so large a difference as that of Lake Erie (1.5) we have never yet observed.

I am also very much astonished to see the rapidity with which the binodal oscillation disappeared on the evening of March 27. There was again a slight trace on the Buffalo curve at 10 p. m. of the 27th, then all vanished and gave place to a simple uninodal oscillation. In our lakes, Lemman in particular, the series of seiches continue much longer.

I have just tried to apply the computations of P. du Boys (Lemman II, p. 83) to your Lake Erie, basing my calculations on the hydrographic chart which you sent me. I obtained for the uninodal seiche 16.9, which is a little more than the rises of the 28th of March give us, but the difference does not exceed the limits of error of this method.

Your observations are very interesting; they give us the *longest oscillations that have ever been accurately measured up to the present time on any body of water*, 400 kilometers, following the curves of the principal axis of the lake. I shall rejoice to see the continuation of your observations on this subject. If you could have made for me some tracings of the finest series of your uninodal and binodal seiches they would be of great interest to me as well as to those of my colleagues among the Swiss naturalists who are studying the phenomena with me.

I should very much like to be able to send you the memoirs published by myself on this phenomenon, but unfortunately the supply of most of them is exhausted. I have not more than four or five to send you. You will, however, find a general and complete summary of my theory on seiches in Volume II of my monograph: *Le Lemman*, pages 39-213.¹ I can but believe that this work will be found in some one of the libraries in your city, and that you can have access to it.

CORRECTION.

Dr. N. E. Dorsey requests that the words "of the atoms or corpuscles," unfortunately inserted by the Editor, and overlooked in correcting the proof, (September REVIEW, page 383, column 2, line 14) be struck out. "On the elastic solid theory of light the luminiferous ether is treated as a *continuous* medium; not as one composed of discrete particles as the words atoms or corpuscles imply."

WEATHER BUREAU MEN AS INSTRUCTORS IN METEOROLOGY.

Since preparing the article on this subject published in the MONTHLY WEATHER REVIEW for August we have received several additional letters, from which we make the following extracts:

Mr. B. S. Pague, Local Forecast Official, says:

I engaged in the work of public lectures in the autumn of 1889, when my first address was at a Farmers' Institute held in Oregon City, Clacka-

¹F. A. Forel. *Le Léman*. Monographie Limnologique. T. I., 1892; II, 1895, and Tome III in preparation. Lausanne, Librairie Rouger.